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## **ABSTRACT**

### **A SEAT**

A seat with an adjustable headrest insert that can be inflated or deflated for user comfort. The insert is shaped to overcome the technical problems of providing passenger adjustability without compromising safety. The seat wing into which the insert is fitted is fixed in position or moveable only under considerable force ensuring that in the event of an emergency, escaping passengers do not have to fumble to locate the wing and will not fall due to unexpected movement of the wing. <Fig. 1>.

- 1 -

A SEAT

The present invention relates to a seat and in particular to a seat or seat element for use in long distance travel.

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In the event of a crash, passengers quickly become disoriented making escape difficult and hazardous. In aircraft, strip lighting is provided in the floor to indicate the direction to the closest exit. When the aircraft comes to rest, passengers travel in the direction indicated using the backs of the seats as supports and handrails. To reduce passenger fatigue and discomfort seats often have a number of adjustable portions to provide travellers with a greater range of sitting positions and to allow sleep during the journey.

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One of the most desirable adjustments possible is the ability to adjust the headrest of the seat in transit into a comfortable position. This adjustment normally takes the form of a stationary cushioned back-plate and two hinged wings extending from the back-plate, which may be moved into a comfortable position to cradle the passenger's head. Unfortunately, this very desirable adjustability presents a problem in the event of a crash. As adjustments are made according to the needs of each individual passenger, the position of the wings, vital for the support of fleeing passengers in the event of such a crash, cannot be relied upon. Even when passengers manage to locate the wing portions of the headrests, the wings are prone to movement on their hinges, while still being gripped by an escaping passenger. This can cause a passenger to fall forwards onto the seat or into the aisle creating an unacceptable obstacle.

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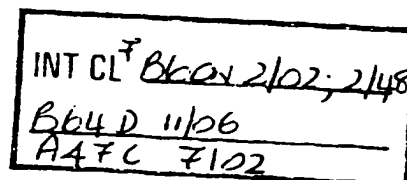
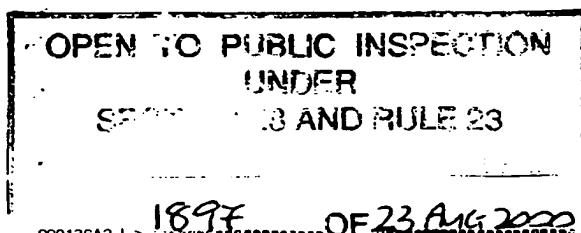
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Another problem associated with the use of headrests of this type is as a result of the various fire regulations with which they must comply. Obviously, designers wish to use low-density foam in headrests to increase passenger comfort, however, this is frequently not possible as low density foams will not resist fire for any given length of time.

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There is therefore a need for seat, which will overcome the aforementioned problems.

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- 2 -

Accordingly, there is provided a seat having at least one headrest insert, the headrest insert comprising, a compactible resilient open cell foam core, an airtight envelope about the foam core and a valve mechanism for controlling inflation or deflation of the insert.

5 Preferably, the headrest insert is mounted in a wing portion of the headrest. Beneficially, this allows the wing to be fixed in position and inflated or deflated as required by a passenger. In this way, as the position of the wings is fixed, escaping passengers do not have to fumble to locate the wing. Furthermore passengers will not fall due to unexpected movement of the wing.

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In one arrangement, the headrest insert is mounted on a back plate of the headrest.

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In one arrangement, the wing portion of the headrest is hingedly mounted on the back plate, the wing portion being operable under considerable force to move between an in use and a stowed position.

In a preferred arrangement the insert covered with a fire resistant membrane.

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In a particularly preferred arrangement a fire resistant seat cover provides the membrane.

The invention will now be described with reference to the accompanying drawing, which show, by way of example only, one embodiment of a seat in which: -

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Fig.1 is a perspective view of a seat headrest insert in accordance with the invention.

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Referring to the drawing there is shown a seat headrest in accordance with the invention indicated generally by the reference numeral 1. The seat headrest 1 has a back plate 2 and two wing extensions 3 suitable for use in vehicle seats where passengers will remain seated for some time, such as on board busses, trains or aircraft.

Each wing extension 3 has a headrest insert 4 carried in a soft foam surround 5 and covered with a fire resistant cover 6. To overcome the physical stress and fatigue associated with long duration journeys the insert 4 is deflated to mould the passenger's head by operation of a valve mechanism 7. The insert 4 is self-inflating and has a compactible resilient open cell foam core (not shown) shaped for insertion into the wing.

While it is understood that inflatable supports are known to be used in seats of this type, it will be understood that the provision of a suitably shape insert for the headrest overcomes the technical problems of providing passenger adjustability without compromising safety. Beneficially, this allows the wing to be fixed in position or moveable only under considerable force. The insert can then be inflated or deflated as required by a passenger. As the position of the wings is fixed, escaping passengers do not have to fumble to locate the wing and will not fall due to unexpected movement of the wing.

By covering the seat in a fire resistant membrane, lower density foam may be used which in turn increases passenger comfort without compromising safety.

The insert may equally be used in the back plate for height adjustable headrests.

It will be understood that while the invention described herein has referred extensively to the use of the envelope as a seat insert that it may equally be provided as a portable cushion for use in a variety of similar applications.

It will of course be understood that the invention is not limited to the specific details as herein described, which are given by way of example only, and that various alterations and modifications may be made without departing from the scope of the invention.

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CLAIMS:

1. A seat having at least one headrest insert, the headrest insert comprising: -

5 a compactable resilient open cell foam core,

an airtight envelope about the foam core; and

10 a valve mechanism for controlling inflation or deflation of the headrest insert.

2. A seat as claimed in claim 1 in which the headrest insert is mounted in a wing portion of the headrest and or on a back plate of the headrest.

- 15 3. A seat as claimed in claim 2 in which the wing portion of the headrest is hingedly mounted on the back plate, the wing portion being movable between an in use and a stowed position.

- 20 4. A seat as claimed in any preceding claim in which the insert incorporates a fire resistant membrane, optionally provided by a fire resistant seat cover.

5. A seat as claimed in any preceding claim, substantially as herein described with reference to the accompanying drawings.

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Fig. 1

